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The development of modern concrete mixes with five components has led to a greater dependence on admixtures to compensate for reduced workability. This shift has resulted in the need for improved testing methods that accurately reflect the rheological properties of the concrete. A joint review by the European Federation of Foundation Contractors (EFFC) and the Deep Foundations Institute (DFI) identified issues with inadequate concrete mixes, specifications, and testing procedures, which can have significant consequences. To address these problems, a Concrete Task Group was established to develop best practices for tremie concrete in deep foundations. This guide is the output from that Task Group and will be completed by 2016 through research and development projects carried out by the Technical University of Munich and the Missouri University of Science and Technology. JSTOR archive usage requires acceptance of JSTOR's Terms and Conditions (. These terms prohibit downloading entire issues or multiple articles without prior permission. Personal, non-commercial use is permitted, but further use must be approved by the publisher (contact information at . Each transmission copy must include the same copyright notice displayed on the screen or printed page. JSTOR is a not-for-profit service helping scholars and researchers discover content in a trusted digital archive. We use technology to increase productivity and facilitate new forms of scholarship ( ). The College Art Association collaborates with JSTOR to digitize, preserve, and extend access to The Art Bulletin. Regarding the Roman Pantheon's structure, Robert Mark and Paul Hutchinson discuss its influence since construction. Modern commentators view it as a high point in an architectural revolution driven by advancements in poz-zolana concrete that enabled the creation of unitary, three-dimensional structures [Show full text]. A Guide to Concrete Repair (Second Edition) was prepared by Kurt F. von Fay, Civil Engineer, for the U.S. Department of the Interior's Bureau of Reclamation Technical Service Center in August 2015. The guide aims to manage and protect water and related resources in an environmentally and economically sound manner. Acknowledgments are due W. Glenn Smoak for preparing the first edition, as well as researchers and field workers involved in updating this guide. Contributions from dedicated individuals are highly valued. These efforts include those of Kurt D. Mitchell, Richard Pepin, Gregg Day, Jim Bowen, Dr. Alexander Vaysburd, Dr. Benoit Bissonnette, Maxim Morency, Brandon Poos, Westin Joy, David (Warren) Starbuck, Dr. Matthew Klein, and John (Bret) Robertson. Dr. William F. Kepler provided substantial funding for this updated guide's preparation. Nancy Arthur worked tirelessly reviewing and editing the guide's specifications sections, ensuring accuracy and clarity. Teri Manross deserves recognition for her numerous hours spent reviewing, editing, and formatting the Guide. The assistance of these individuals and many others is gratefully acknowledged. The Supv Substructure was established in 1982 under the leadership of Leder I.T.D. It is a part of the Department of Highways, Bridge Section, Mail Transportation Research Board, and National Research Council's Transportation Research Board. The executive committee for 1981 included Thomas D. Larson as Chairman, with Darrell V Manning as Vice-Chairman from Idaho Transportation Department. Other notable members were Thomas B Deen, Ray A Barnhart, Robert W Blanchette, Francis B Francois, William J Harris Jr., and J Lynn Helms, among others. The committee's primary focus was on transportation-related research and development. They aimed to improve safety procedures for vertical concrete formwork through the creation of a guide. The Scaffolding, Shoring & Forming Institute (SSFI) played a key role in this effort. A guide titled "Guide to Safety Procedures for Vertical Concrete Formwork" was prepared by the SSFI's Forming Section Engineering Committee. It provided essential safety protocols and procedures for workers involved in concrete formwork projects. The article discusses the impact of formwork removal time reduction on construction productivity improvement through mix design of early strength concrete. The authors examine the effects of cement fineness, SO3 content, an accelerating agent, and chemical admixtures mixed with unit weights of cement on concrete early strength. The study uses C24 (characteristic value of concrete, 24 MPa) as a reference point for the experiment conducted. Three types of cement were selected: Ordinary Portland Cement (OPC), High Fineness and SO3 OPC (HFS_OP C), and Early Portland Cement (EPC). The unit weights of cement were set to OPC 330, 350, and 380. The authors also prepared a concrete mixture with a triethanolamine (TEA)-based chemical admixture for HFS. They conducted a raw material analysis, examining compressive strength, temperature history, and maturity (Dh). Furthermore, the vertical formwork removal time was evaluated according to the criterion of each country. fine and coarse groups occupy about 60 to 80 percent of the volume of concrete, while the paste makes up around 20 to 40 percent. The aggregate should have sufficient strength and weather resistance, with no harmful materials present. A well-graded aggregate with low void content is crucial for efficient use of paste. Each particle is fully coated with paste, filling in the gaps between aggregates. The quality of concrete largely depends on the quality of paste, which is influenced by the water-cement ratio and curing process. The cement and water react chemically through hydration, a rapid reaction initially followed by slower reactions over time. More water than needed is used to make concrete workable, but excessive water weakens it. A proper balance of water to cement is essential for quality concrete. Durability features include resistance against weather and ability to withstand hardening. 1. REPORT DOCUMENTATION PAGE 2. REPORT NUMBER 3. GOVT ACCESSION NO. 4. RECIPIENT'S CATALOG NUMBER Miscellaneous Paper SL-80-10 5. TITLE (and Subtitle) 6. TYPE OF REPORT & PERIOD COVERED: Construction of Tremie Concrete Cutoff Wall, Final report Wolf Creek Dam, Kentucky Cracking in concrete structures is a widespread issue, with crack-free structures being rare in real-world applications. Early-age cracking can occur due to various factors such as mix composition, exposure environment, hydration rate, and curing conditions. Moreover, understanding the causes and consequences of cracking is essential for selecting appropriate measures to resolve this problem. This paper aims to identify the major causes and consequences of early-age cracking in concrete and provide effective remedial measures to reduce or eliminate it. The study discusses different types of early-age cracks, factors affecting their initiation and growth, causes of early-age cracking, and modeling of early-age cracking. Additionally, the challenges associated with underwater concrete placement in drilled shafts are highlighted, including complex construction logistics and the need for proper mix design and placement techniques to achieve high-quality concrete. Competent design and sound construction planning are crucial to mitigate these issues and ensure successful underwater concrete placement. To construct drilled shafts effectively, it's crucial to minimize risks and costs. This paper will focus on key technical aspects of concrete mix design, production, and placement in drilled shaft construction. Additionally, two case studies from previous projects will be discussed, highlighting lessons learned. Placing concrete within the shafts is a critical process that often determines the success or failure of drilled shaft projects. When working underwater, the complexity increases, and logistical challenges arise. Improper concrete mix or construction procedures have led to several failures in the past. The following sections will address important technical issues commonly encountered during underwater construction of drilled shafts. When placing concrete underwater, it's essential to consider unique properties that prevent issues like cement washout, laitance, segregation, cold joints, and water entrapment. Concrete mix design plays a crucial role in ensuring the success of such projects. The following pages will delve into formwork design requirements, factors related to formwork, high-wall formwork, timber-framed formwork, sheathing, wall-tying systems, construction joints, slipform, and climbing or jump forms. I'm sorry, but it seems like you haven't provided any text for me to paraphrase. Please share the text you'd like me to work with, and I'll do my best to assist you!